IV. STATUS OF AMENDMENTS FILED SUBSEQUENT TO THE FINAL REJECTION

Applicant's amendment mailed May 7, 2003 with the above referenced language was refused entry on the grounds that the addition to the claims constituted "new matter." This decision is part of this appeal.

V. SUMMARY OF INVENTION

The invention will be summarized with respect to pending claim 11.

The claim relates to a static mixer. The mixer includes precision cast static mixer elements (1) arranged along a central axis (10), each precision cast static mixer element having a circumferential reinforcement region (4).

The assembly includes intermediate elements (2). These intermediate elements abut the circumferential reinforcement region (4) and are formed in combination with the precision cast static mixer elements, a static mixer body of a preselected length with a periphery defined by the reinforcement region and the intermediate elements.

There are joints between the reinforcement region (4) and the intermediate elements (2). These joints define the first and second continuous joint surfaces (40a, 40b and 20a, 20b). These joints mutually define a seal formed between the first and second continuous joint surfaces between the reinforcement regions and the intermediate elements (2). It is to be noted that 40a, 40b and 20a, 20b are surfaces which end up always defining a seal when the combination is assembled. [See Figs. 1, 2 and 3].

The claim uses the wording "continuous joint surface". Turning to Fig. 1, it will be seen that surfaces 40a and 40b each are continuous and extend around the entire periphery of the central passage of the static mixer. Likewise, turning to Figs. 2 and 3, it will be seen that surfaces 20a and 20b each are continuous and extend around the entire periphery of the central passage of the static mixer. When these surfaces are abutted, they will come together and form the mutually define seal necessary to seal the static mixer. Fluid material from within the static mixer cannot flow through the formed seal to positions outside the static mixer.

A first continuous joint surface defines at least one cut-out having an upwardly extending cavity. In the case of Fig. 1, this is the cavity or cut-out (42). In the example of Fig.

1, this cut-out happens to appear on the reinforcement region about the static mixing element 3. A second continuous joint surface supports a protrusion for extending into the at least one cut-out of the first continuous joint surface. In the example of Fig. 2, protrusion (21) is the member that extends into the at least one cut-out (42) in the reinforcement region (4). It is to be understood that with the system of reinforcement regions (4) and intermediate elements (2), the situation could as well be reversed.

It is vitally important that the system of cut-outs (42) and protrusions (21) does not interfere with the seals formed by continuous joint surfaces 40a, 40b and 20a, 20b. It is stated in amended claim 11 "the first continuous joint surface defining the at least one cut-out having an upwardly extending cavity of sufficient dimension for receiving the protrusion supported on the second continuous surface without obstruction within the cavity while permitting the first and second continuous joint surfaces to define the seal".

What is the advantage of this construction? The advantage is that the "first continuous joint surface defines an unobstructed planar surface to enable machining access for adjusting the length of the static mixer." In the words of the specification, this adjustment occurs to "a tolerance of about 0.1 mm"! The ability to machine the unobstructed planar surface is the structure present in the claims which is not shown in the prior art and is the principal advantage of this construction. As will hereinafter be set forth, this construction is not disclosed by or suggested by any of the cited references.

It is important to note that this part of the claim does not refer to the "second continuous joint surface". This is the surface that supports the protrusion. This surface will be obstructed and will prevent convenient machining. For example, attention is invited to Fig. 2. Continuous surface 20a cannot be conveniently machined without being obstructed by protrusions (21, 21'). A machinist attempting to adjust the length of the static mixer with the millimeter precision required by this disclosure would have to machine around protrusions (21, 21'). This is not the case with surfaces 40a and 40b shown in Fig. 1. A machinist attempting

to adjust the length of the static mixer with the millimeter precision required by this disclosure can easily machine surfaces 40a and 40b [it being understood that cut-outs 42 form no impediment to such machining].

The issue related to "new matter" cannot be fully understood by the above summary until it is understood that rejection over the prior art occurred with the Examiner criticizing and rejecting the claim language because it did not state:

> "... However, the claims do not require a continuous, entirely planar, circumferential surface..." see Final Rejection mailed April 8, 2003 at page 10 under the "Responses to Arguments."

Thus in the above description where the wording "continuous joint surface" appears, applicant attempted to insert by amendment "continuous entirely planar, circumferential joint surface." Thus, "continuous joint surface" referred to above would read "continuous entirely planar, circumferential joint surface" had claim entry of the language been made.

VI. ISSUES

Is the rejection under 35 USC 112, second paragraph proper?

Is the refusal to enter the language "continuous entirely planar, circumferential joint surface" under 35 USC 132(a) proper?

Is the rejection of claims 11-13 and 15-18 under 35 USC 102(e) as being anticipated by Streiff (US Patent 6,394,644) proper?

Is the rejection of claims 11-13, 15, 16 and 18 under 35 USC 102(b) as being anticipated by King (US Patent 4,614,440) proper?

Is the rejection of claims 11-13, 17 and 19 under 35 USC 102(b) as being anticipated by Bokenkroger (US Patent 1,857,348) proper?

Is the rejection of claims 14 under 35 USC 103(a) as being unpatentable over Streiff in view of Takeda et al. (US Patent 4,892,379) proper?

Is the rejection of claim 19 under 35 USC 103(a) over Streiff proper?

Is the rejection of claim 14 under 35 USC 103(a) as being unpatentable over King in view of Takeda et al. proper?

Is the rejection of claim 17 under 35 USC 103(a) as being unpatentable over King proper?

Is the rejection of claim 19 under 35 USC 103(a) as being unpatentable over King proper?

Is the rejection of claim 14 under 35 USC 103(a) as being unpatentable over Bokenkroger in view of Takeda et al. proper?

VII. GROUPING OF CLAIMS

All claims stand or fall together.

VIII. ARGUMENT

Rejection under 35 USC §112, **second paragraph**

Applicant used the terms "defining first and second joint surfaces" in claim 11. Thereafter, the terms "a first continuous joint surface" and "a second continuous joint surface" was used. The rejection concluded that these terms were "ambiguous as to which of the first continuous joint surfaces and which of the second continuous joint surfaces is being referenced."

Applicant submits that there is no ambiguity. It reading the claims, the first continuous joint surface has the "cut-out" which enables the claimed machining to take place. The second continuous joint surface supports the protrusion. The Board will note that the above quotations do not include the material objected to as "new matter."

Regarding the Examiner objection to "the projection", Applicant through inadvertence failed to correct this term. Applicant will consent to substitution of the term "protrusion" or the equivalent to resolve this ambiguity.

Refusal to Enter the Language "Continuous Entirely Planar, Circumferential Joint Surface" under 35 USC 132(a)

This application originated in the German language. The translation provided is literal from German into English. By the insertion of the wording "continuous entirely planar, circumferential joint surface", applicant sought to follow what was believed to be an express suggestion from the Examiner to distinguish over the prior art. Referring to page 10, under this subtitle Response to Arguments the following appears:

> 16. Applicant's arguments concerning the continuous joint surfaces are not convincing because they deviated from the claim limitations and instead focus upon, for example, the instant drawings. For example the applicant states "[a]s a consequence, these surfaces 22, 24 do not extend without interruption around the central portion of the static mixer of Streiff". However, the claims do not require a

> continuous, entirely planar, circumferential surface. [Immediately preceding language underlining added]. Also, according to the language of claim 11, "continuous joint surface supporting a protrusion", the fact that has surface is covered by a protrusion which it supports does not imply that the underlying surface is not continuous. Instead, the claims require that the continuous surface be covered by a protrusion in this manner.

Applicant recognizes that he may not add new matter to the patent application by amendment after filing. 35 USC 132(a). However, new matter does not include amendments that merely clarify or make definite matter originally disclosed. An applicant may freely amend the specification and claims without violating the new matter rule so long as the claims are supported by the original description of the invention. It goes without saying, that the specification and drawings are the original description of the invention.

The general rule is that terms in the claims are to be given their ordinary and accustomed meaning. *Johnson Worldwide Associates, Inc. v. Zebco Corp.*, 175 F.3d 985, 50 USPQ2d 1607 (Fed. Cir.1999). As set forth in that case:

> We begin, as with all claim interpretation analyses, with the language of the claims. *See, Renishaw v. Marposs Societa per Azioni*, 158 F.3d at 1243, 48 USPQ2d 1117 at 1120 (Fed. Cir. 1998), *Abtox, Inc. v. Exitron Corp.*, 122 F.3d 1019, 1023, 43 USPQ2d 1545, 1548 (Fed. Cir. 1997); *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 619-20, 34 USPQ2d 1816, 1819 (Fed. Cir. 1995) . The general rule is, of course, that terms in the claim are to be given their ordinary and accustomed meaning. *See Renishaw* 158 F.3d at 1249, 48 USPQ2d at 1121; *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1572, 40 USPQ2d 1619, 1622 (Fed. Cir. 1996) . General descriptive terms will ordinarily be given their full meaning; modifiers will not be added to broad terms standing alone. *See, e.g., Virginia Panel Corp. v. MAC Panel Co.*, 133 F.3d 860, 865-66, 45 USPQ2d 1225, 1229 (Fed. Cir. 1997) (unmodified term "reciprocating" not limited to linear reciprocation), *Bell Communications*, 55 F.3d at 621-22, 34 USPQ2d at 1821 (unmodified term "associating" not limited to explicit association); *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987, 6 USPQ2d 1601, 1606 (Fed. Cir. 1988) (unmodified term "plasticizer" given full

> range of ordinary and accustomed meaning). In short, a court must presume that the terms in the claim mean what they say, and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms. *See, e.g., Nike Inc. v. Wolverine World Wide, Inc.*, 43 F.3d 644, 646, 33 USPQ2d 1038, 1039 (Fed. Cir. 1994) ; *E.I. Du Pont De Nemours & Co. v. Phillips Petroleum*, 849 F.2d 1430, 1433, 7 USPQ2d 1129, 1131 (Fed. Cir. 1988) ; *Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 759, 221 USPQ 473, 477 (Fed. Cir. 1984) .

Here, the Examiner in communicating to applicant used the terms in question to point out that a "continuous, entirely planar, circumferential surface" was needed to realize the polishing or grinding that enabled precise length to be given to the assembled mixer. This plain language communicated from the Examiner was understood by Applicant. However, once the plain language is inserted to the claims, it finds itself being rejected as "new matter." In other words, the general descriptive terms the Examiner used in the file cannot be transferred to be general descriptive terms in the claims to render the claims definite.

Applicant recognizes his duty to address each rejection of the Examiner discretely. Because of the number of rejections, applicant will first summarize and distinguish the major references said to be anticipating in the rejections. Thereafter, each rejection will be serially considered with reference back to the particular summarized and distinguished major reference.

Streiff Distinguished

In order to understand Streiff U.S. Patent 6,394,644, it is necessary to briefly review Signer U.S. Patent 5,564,827, the reference upon which this disclosure improves. In the Signer reference, stacked static mixer elements 4 are placed between sleeve members 5. A system of bosses 45 and corresponding recesses 54 is used to key the respective static mixer elements 4 and sleeve members 5 together. This provided a system of static mixer devices that were generally accessible for maintenance and cleaning and visual inspection after use.

Streiff recognizes a serious drawback of this device. Recognizing that Signer is PCT publication number W095/09689, Streiff states at column 1, lines 34-44:

> It is also desired that static mixer devices must generally be accessible for maintenance and cleaning and visual inspection after use. One previously known method to provide access permitting cleaning and inspection is to support individual elements with a satellite type ring as is shown in International Publication WO 95/09689. This construction, however, requires expensive precision casting and costly machined spacer rings. .... (Emphasis added)

It is the purpose of applicants' invention to do away with the "costly machined spacer rings".

Streiff U.S. Patent 6,394,644 is not at all concerned with spacer rings. First, and viewing Streiff at Fig. 5, the static mixer has an outer seal constituting a pipe 62. It is into this pipe 62 that the individual elements 10a, 10b, 10c and 10d of the static mixer are placed.

This disclosure contains no equivalent of the pipe 62. Instead, reinforcement regions (4) only form the seal for the static mixer. There is no equivalent of the intermediate elements.

Streiff does have static mixer elements surrounded by edge surfaces. The surfaces appear at edge surfaces 22 (see Fig. 2 and Fig. 6A) and edge surfaces 24 (see Fig. 3 and Fig. 6B). However, it has no equivalent of applicants' intermediate elements (2). Each of the elements 10a, 10b, 10c and 10d are static mixer elements.

Thus the rejection equates some of the static mixer elements, say 10a and 10c, to intermediate elements (2) and others of the static mixer elements, say 10b and 10d, to precision cast static mixer elements (4).

If this assumption is made, it is instructive to turn to Figs. 6A, 6B and 6C of Streiff. As the rejection correctly notes, protrusions and cut-outs appear. However, protrusions 82, 83 interrupt the entire surfaces 22, 24. As a consequence, these surfaces 22, 24 do not extend

without interruption around the central portion of the static mixer of Streiff. Similarly, cut-outs 81 interrupt the entire surfaces 22, 24.

If one were to adjust the length of these mixer elements placed one upon another, one would have to machine both protrusions 82, 83 and cut-outs 81. To preserve a seal between the cut-outs 81 and protrusions 82, 83, the machining of the protrusions and cut-outs would have to be precisely equal. Machining that is other than precisely equal would cause a leakage between the surfaces 22, 24, especially where the cut-outs 81 and protrusions 82, 83 mate. Further, as one can plainly see, machining at the base of the protrusions 82, 83 would require excruciating care to prevent leakage.

Compared to the machining of a single flat surface as set forth in this disclosure, the Streiff arrangement is incredibly laborious. This is why the successive mixer elements are loaded into pipe 62. The disclosure herein does not require the equivalent of pipe 62.

King Distinguished

King U.S. Patent 4,614,440 discloses stacked elements 20 which are best viewed in Fig. 4. These elements all include protrusions on the "biscuits" 10, 11 and 12 shown in Fig. 4. Two distinctions are present.

First, and referring to Fig. 3, the attention of the Examiner is drawn to the interval spacing 40 [see column 3, lines 31-52]. The purpose of the protrusions (which are apparently unlabeled) is to maintain a spatial separation between the biscuits 10, 11 and 12. As opposed to this construction, applicants' invention maintains a seal between adjacent mixing elements and intermediate elements.

Second, the surfaces along both sides of the "biscuits" 10, 11 and 12 include protrusions. Even if the surfaces were designed for contact to form a seal, one would have to precisely machine both the surfaces and the protrusions to obtain the result herein. As

contrasted to this construction, it is only necessary that applicants machine to one surface to precisely adjust the length of the assembled mixer.

Bokenkroger Distinguished

Bokenkroger '348 cannot be said to suggest or disclose the "continuous joint surface" surrounding the central axis of the mixing element. First, the filter elements 9 "are made of an absorbent material such as felt, soft cardboard, pumice or any other porous material..." See column 2, lines 55 to 62. Second, these elements are obviously not intended at all for the construction contemplated herein where alternating elements are placed to seal, one against another. It is submitted that this reference is not in the same field as the invention claimed in claim 11.

Rejection of Claims 11-13 and 15-18 under 35 USC §102(E) As Being Anticipated by Streiff (US Patent 6,394,644)

Referring to the rejection of Streiff, and as emphasized in the above summary, the claim limitation:

> the first continuous entirely planar, circumferential joint surface defining it the at least one cut out having an upwardly extending cavity of sufficient dimension for receiving the protrusions supported on the second continuous in entirely planar, circumferential surface with out obstruction within the cavity while permitting the first and second continuous entirely planar, circumferential joint surfaces to define the seal,
>
> whereby the first continuous entirely planar, circumferential joint surface defines an unobstructed planar surface to enable machining access for adjusting the length of the static mixer.

As has been emphasized, Streiff has no unobstructed planar surface to enable machining access for adjusting the length of the static mixer to the precision herein required.

Rejection of Claims 11-13, 15, 16 and 18 under 35 USC 102(B) As Being Anticipated by King (US Patent 4,614,440)

For the analysis of this rejection, applicant refers to the quote of claims 11 appearing immediately above. The structure of the "first continuous entirely planar, circumferential joint surface" is entirely missing and not suggested by this reference.

The purpose of the protrusions (which are apparently unlabeled) is to maintain a spatial separation between the biscuits 10, 11 and 12. As opposed to this construction, applicants' invention maintains a seal between adjacent mixing elements and intermediate elements.

Second, the surfaces along both sides of the "biscuits" 10, 11 and 12 include protrusions. Even if the surfaces were designed for contact to form a seal, one would have to precisely machine both the surfaces and the protrusions to obtain the result herein. As contrasted to this construction, it is only necessary that applicants machine to one surface to precisely adjust the length of the assembled mixer.

Rejection of Claims 11-13, 17 and 19 under 35 USC 102(B) As Being Anticipated by Bokenkroger (US Patent 1,857,348)

Bokenkroger '348 cannot be said to suggest or disclose the "continuous joint surface" surrounding the central axis of the mixing element. First, the filter elements 9 "are made of an absorbent material such as felt, soft cardboard, pumice or any other porous material..." See column 2, lines 55 to 62. Second, these elements are obviously not intended at all for the construction contemplated herein where alternating elements are placed to seal, one against another. It is submitted that this reference is not in the same field as the invention claimed in claim 11.

Rejection of Claims 14 under 35 USC 103(a) As Being Unpatentable over Streiff in View of Takeda Et Al. (US Patent 4,892,379)

Applicants agree with the Examiner that Takeda et al. includes an adaptor for a fiber optic connector including a spring steel cylinder. The obviousness rejection is traversed on two grounds. First, applicants submit that the art is complete non-analogous. Fiber optic connectors and static mixer element assemblies are completely different; it is not understood how one having ordinary skill in the art would ever associate these two. Second, fitting together of the mixer elements as set forth in claim 11 is the main invention herein. Streiff '644 simply does not disclose this combination.

Claim 14 has been rejected under 35 USC 103(a) as being unpatentable over Streiff '644 in view of Takeda et al. Applicants rely on the distinguishing of Streiff '644 to avoid this rejection. Applicants respectfully traverse the combination of an isolated part of a fiber optic connector with the intricately designed elements of claim 11.

Rejection of Claim 19 under 35 USC 103(a) over Streiff

Claim 19 has been rejected under 35 USC 103(a) as being unpatentable over Streiff '644. Applicants rely on their argument in distinguishing Streiff '644. Further, if it "would have been obvious to one of ordinary skill in the art to have varied duplicated the cutouts (sic)", applicants respectfully requested that art be cited. No such art was cited. Applicants submit that the invention of claim 11 as limited by claim 19 is not obvious over the art of record.

Rejection of Claim 14 under 35 USC 103(a) As Being Unpatentable over King in View of Takeda Et Al.

Claim 14 is rejected under 35 USC 103(a) over King in view of Takeda et al. Applicants rely on their argument distinguishing King. Simply stated, the combination does not include a seal as set forth in claim 11; instead the combination would include the deliberate spatial separation between the elements.

Rejection of Claim 17 under 35 USC 103(a) As Being Unpatentable over King

Claim 17 is rejected under 35 USC 103(a) over King. Applicants rely on their remarks distinguishing King. King has deliberate spatial separations between his respective elements. He does not contemplate the system of seals with protrusion and cut-outs contemplated by this invention. There is no suggestion of the unobstructed surface for machining to the precise length required for the entire assembly.

Rejection of Claim 19 under 35 USC 103(a) As Being Unpatentable over King (and Apparently) Brokenkroger

Claim 19 is rejected under 35 USC 103(a) over King and (apparently) Bokenkroger. Applicants rely on their previous remarks distinguishing both of these references. Bokenkroger relates to a porous air filter. King has deliberate spatial separations between his elements (no seal). It is submitted that nothing in these references suggests their combination and that the combination is inoperative.

Rejection of Claim 14 under 35 USC 103(a) As Being Unpatentable over Bokenkroger in View of Takeda Et Al.

Finally, claim 14 is rejected under 35 USC 103(a) under Bokenkroger in view of Takeda et al. Applicants rely on their argument distinguishing Bokenkroger. It is not seen how a porous air filter held together by a slit elastic cylinder from an optical fiber connector can have anything to do with static mixer elements and intermediate elements forming seals with aligned protuberances and cut-outs.

Final Comment

The Examiner has cited *Hewlett-Packard Co. v. Bosch & Lomb Inc.*, 15 USPQ2d 1525 (Federal Circuit; 1990) for the proposition "apparatus claims cover what a device is, not what a device does". The Hewlett-Packard case relates to a situation where the claimed structure is different than that shown by the prior art. Noting that the claims structure was different than the prior art, the court held that the patent at issue was valid and infringed.

Here applicants claim structure. The structure claimed is a seal system. This seal system has two continuous surfaces which form a seal and a system of cut-outs and protuberances which align the sealed members. One of the aligned members (the one with the cut-outs) defines an unobstructed surface which can be easily machined in this combination.

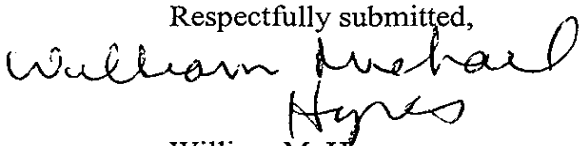
As set forth in the Hewlett-Packard case, this is not an "operational difference". In the words of that case:

> An invention need not operate differently than the prior art to be patentable, but need only *be* different. (Italics in the original) 15 USPQ2d 1526

Applicants submit that their device is non-obviously different.

For the reasons given above, Appellants respectfully submit that the claims on appeal recite an invention that is patentably distinct over the cited prior art. Reversal of all rejections is respectfully requested.

Respectfully submitted,



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